



Rockbox User Manual

Developed by the Rockbox Team

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PART I INSTALLATION

1. DIFFERENCES BETWEEN BINARIES

You can get 3 different firmware binaries from Rockbox website. Current Version, Daily Builds and Bleeding Edge.

- Current version (2.0) is the latest stable version developed by Rockbox Team. It's free of known bugs and works perfectly with Archos Jukebox Player/Studio and Recorder.
- Daily Build is a non-stable (not 100% stable) version of Rockbox. It supports all new features and patches developed since last stable version. This version is made automatically everyday and can be found at <http://rockbox.haxx.se/daily.shtml>
- Bleeding edge is the same as Daily build, but built from the latest development code every 20 minutes.

2. INSTALLING THE FIRMWARE

To install Rockbox, you just have to unzip the firmware file (for current version) and copy archos.mod (for the player/studio version) or ajbrec.ajz (for the recorder version) in the root folder of your jukebox, overwriting your old file if needed. If you want to save your old firmware version, change its name to something like old-archos.mod or old-archos.ajz.

When your jukebox powers on, it loads archos firmware on ROM, which automatically checks your hard disk's root folder for a archos.mod (on the player version) or ajbrec.ajz (on the recorder version). Note that archos firmware can only read the 10 first characters of each file name in this process, so don't rename your firmware files like archos.mod.old and so on, because it's possible that archos loads that file and not the new one.

It is also important to create a .rockbox folder, because some functions use that folder. Windows can't create this folder using windows explorer. You have to create it with command line, using the DOS command 'md .rockbox'.

3. GETTING EXTRAS. FONTS AND LANGUAGES

Rockbox supports custom fonts (for the Recorder version only) and up to 16 different languages.

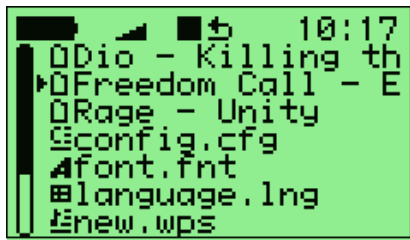
Fonts and Languages can be found at <http://rockbox.haxx.se/fonts/> and <http://rockbox.haxx.se/lang/>

4. UNINSTALLING ROCKBOX

To remove Rockbox Firmware, delete archos.mod or ajbrec.ajz file and download latest archos firmware from <http://www.archos.com>. If you have renamed your old firmware file, you can name it again archos.mod (ajbrec.ajz) and place it on the root folder. Also, you can use Archos version on ROM. To do so, just delete rockbox firmware, without installing another firmware file on your root folder.

PART II
USING ROCKBOX

5. FILE BROWSER



Recorder browser screenshot



Player browser screenshot

The file browser helps you navigate through the files on your Archos, entering folders and executing the default action on each file. To help us differentiate files, each file format is displayed with an icon. You can select which file types are displayed (see section 6.3.2)

5.1 CONTROLS

FOR THE PLAYER/STUDIO VERSION

KEY	FUNCTION
LEFT/RIGHT	Go to previous/next item in list. If you are on the first/last entry, the cursor will wrap to the last/first entry.
STOP	Go to the parent directory.
PLAY	Executes an action. Depending on the file type, that action may vary. (See section 5.2)
ON	If there is a MP3 playing, it returns to the While Playing Screen (WPS)
ON+PLAY Menu	Enters the File Menu Switches to the Main Menu

FOR THE RECORDER VERSION

KEY	FUNCTION
UP/DOWN	Go to previous/next item in list. If you are on the first/last entry, the cursor will wrap to the last/first entry.
ON+UP/DOWN	Move one page up/down on the list.
LEFT	Go to the parent directory.
PLAY/RIGHT	Executes an action. Depending on the file type, that action may vary. (See section 5.2)
ON	If there is a MP3 playing, it returns to the While Playing Screen (WPS)
ON+PLAY	Enters the File Menu
F1	Switches to the Main Menu
F2	Switches to the Browse/play Quick Menu
F3	Switches to the Display Quick Menu

- File Menu:

This menu shows the next options:

- Queue (only if a song is playing already): We can enqueue up to 100 files. This function needs a folder called .rockbox to save the queue file there. (see section 2)
- Delete: we can only delete files, not folders. Rockbox will ask for confirmation before deleting a file.
- Rename: This function lets the user modify a file name. To move the cursor backward and forward use ON+LEFT/RIGHT
- VBRfix: It scans the VBR file and updates/creates the Xing header. The Xing header contains information about the VBR stream, to calculate average bit rate and to more accurately fw/rew in the stream.



Recorder File menu



Player File menu

5.2 SUPPORTED FILE FORMATS

	FILE TYPE	ACTION
	Directory	The browser enters that directory
	.mp3	Rockbox takes you to the WPS and starts playing the file
	.m3u	Rockbox loads the playlist and starts playing the first file
	.ajz / .mod	ROLO will load the new firmware
	.wps	The new WPS display configuration will be loaded
	.lng	That language will replace current one
	.txt	You will read the text file using Rockbox text browser
	.cfg	The settings file will be loaded
	.fnt	This font will replace the current one (Recorder only)

6.MAIN MENU



Recorder Main menu



Player Main menu

You can access Rockbox main menu pressing MENU on the player/studio version or F1 on the Recorder version. Every option in rockbox is controlled via this main menu, but some of them are also found on the Quick Menus (recorder version only).

User configuration is stored on the unit, but there are different methods used between the Player and Recorder models. The Recorder series have an area of battery backed RAM that Rockbox can access instantly, the Player/Studio series does not. The solution is to write the config data to the disk drive, this however can lead to a problem. Rockbox does not spin up the disk solely for the purpose of writing user data, but instead will do it when it spins up the disk the next time, for example refilling the MP3 buffer, or navigating through the file browser - if no disc writes occur before you switch off the unit, it is possible for user changes to be lost.

6.1 NAVIGATING THROUGH THE MENU

PLAYER/STUDIO CONTROLS

KEY	ACTION
LEFT	Selects previous option in the menu. Inside an setting, decreases the value or chooses previous option
RIGHT	Selects next option in the menu. Inside an setting increases the value or chooses next option
PLAY	Selects item
STOP	Exit menu, setting or moves to parent menu.

RECORDER CONTROLS

KEY	ACTION
UP	Moves up in the menu. Inside a setting, increases the value or chooses next option
DOWN	Moves down in the menu. Inside a setting, decreases the value or chooses previous option
PLAY/RIGHT	Selects option
OFF/LEFT	Exits menu, setting or moves to parent menu

6.2 SOUND SETTINGS

This menu offers a selection of sound properties you may change to improve your sound experience.

- **Volume**
The sound volume your music is played at. Although settable range is 0-100%, many units don't produce audible output below 40%.
- **Bass**
Bass emphasis or suppression. 0 is flat.
- **Treble**
Treble emphasis or suppression. 0 is flat.
- **Balance**
Adjusts left/right channel balance. - is left, + is right.
- **Channels**
Select which channels to hear: Left, Right, Stereo (both, separated) or Mono (both, mixed).
- **Loudness (Recorder only)**
Loudness is an effect which emphasises bass and treble.
- **Bass Boost (Recorder only)**
Bass Boost exploits the psychoacoustic phenomenon of the "missing fundamental" by creating harmonics of the frequencies below the centre frequency of the bandpass filter. This enables a loudspeaker to display frequencies that are below its cutoff frequency.
- **Auto Volume (Recorder only)**
Auto volume is a feature that automatically lowers the volume on loud parts, and then slowly restores the volume to the previous level during N seconds. That N time is configurable here.

6.3 GENERAL SETTINGS

6.3.1 PLAYBACK OPTIONS

You can configure here all settings related to mp3 playback

- **Shuffle**
Select shuffle ON/OFF. This alters how Rockbox will select which next song to play.
- **Repeat**
Repeat modes are Off/One/All. "Off" means no repeat. "One" means repeat one track over and over. "All" means repeat playlist/directory.

- **Play selected first**

This setting controls what happens when you press PLAY on a file in a directory and shuffle mode is on. If this setting is Yes, the file you selected will be played first. If this setting is No, a random file in the directory will be played first.

- **Resume**

Sets whether Rockbox will resume playing at the point where you shut off. Options are: Ask/Yes/No. "Ask" means it will ask at boot time. "Yes" means it will unconditionally try to resume. "No" means it will not resume.

- **FF/RW Min Step**

The smallest step you want to fast forward or rewind in a track.

- **FF/RW Accel**

How fast you want search (ffwd/rew) to accelerate when you hold down the button. "Off" means no acceleration. "2x/1s" means double the search speed once every second the button is held. "2x/5s" means double the search speed once every 5 seconds the button is held.

- **Anti-skip buffer**

This setting is really "extra antiskip". it lets you set a timer for how many seconds earlier than normally necessary the disk should spin up and start reading data. you don't need it unless you shake and bump the unit a lot.

- **Fade on Stop/Pause**

This setting enables and disables the fade effect when you pause or stop playing a song. Fade is a progressive increase or reduction of volume, from your custom volume to 0 and the inverse effect.

6.3.2 FILE VIEW OPTIONS

This menu controls how Rockbox will show info on the file browser.

- **Sort mode**

How directories are sorted. Case sensitivity ON makes uppercase and lowercase differences matter. Having it OFF makes them get treated the same.

- **Show files**

Controls which files are displayed in the dir browser:

- **Music:** Only directories, .mp3, .mp2, .mpa and .m3u files are shown. Extensions are stripped. Files and directories starting with . or has the "hidden" flag set are hidden.
- **Supported:** All directories and files Rockbox can load (including .fnt, .wps, .cfg, .txt, .ajz/.mod) are shown. Files and directories starting with . or has the "hidden" flag set are hidden.
- **All:** All files and directories are shown. Extensions are shown. No files or dirs are hidden.

- **Follow Playlist**

Do you want the dir browser to follow your playlist? If Follow Playlist is set to "Yes", you will find yourself in the same directory as the currently playing file if

you go to the Dir Browser from the WPS. If set to "No", you will stay in the same directory as you last were in.

6.3.3 DISPLAY OPTIONS

- **Scroll**

This feature controls how will text scroll on Rockbox. You can configure the following parameters:

- **Scroll Speed:** Controls the speed of scrolling text.
- **Scroll Start Delay:** Controls how many milliseconds Rockbox should wait until the text begins scrolling.
- **Scroll Step Size:** This parameter tells Rockbox how many pixels should the text scroll in each step.
- **Bidirectional scroll Limit:** Rockbox has two different scroll methods, scrolling the text always to the left, and when the line has ended, begin again with the Start of the text, or move to the left until you can read the end of the line, and scroll right until you see the beginning of the text. Rockbox chooses which method it should use, depending of how much it has to scroll left. This setting lets you tell Rockbox where that limit is, expressed in percentage of line length.

- **Backlight timer**

How long time the backlight shines after a key press. Set to OFF to never light it, set to ON to never shut it off or set a preferred timeout period.

- **Backlight on when plugged**

Do you want the backlight to be constantly on while the charger cable is connected?

- **Contrast**

Changes the contrast of your LCD display.

- **Invert**

This setting lets you invert the whole screen, so now you get a black background and green text graphics.

- **Peak meter** (Recorder only)

The peak meter consists of servaral indicators

1.) The bar - That is the fat horizontal bar. It represents the current volume value.

2.) The peak indicator - This is a little vertical line at the right end of the bar. It indicates the peak volume value that occurred recently.

3.) The clip indicator - This is a little black block that is displayed at the very right of the scale when an overflow occurs. It usually doesn't show up during normal playback unless you playback an audio file that is distorted heavily. If you encounter clipping While recording your recording will sound distorted. You should lower the gain. Note that the clip detection is not very precise. Clipping might occur without being indicated.

4.) The scale - Between the indicators of the right and left channel there are little dots. These dots represent important volume values. In linear mode each dot is a 10% mark. In dbfs mode the dots represent the following values

(from right to left): 0db, -3db, -6db, -9db, -12db, -18db, -24db, -30db, -40db, -50db, -60db.

The peak meter can be configured in various parameters:

- **Peak release:** This determines how fast the bar shrinks when the music becomes softer. Lower values make the peak meter look smoother.
 - **Peak hold:** Specifies the time after which the peak indicator will reset. If you set this value eg to 5s then the peak indicator displays the loudest volume value that occurred within the last 5 seconds. Big values are good if you want to find the maximum value of a song. That might be an interesting value for copying music from the jukebox via the analog output to some other recording device.
 - **Clip hold:** How long should the clipping indicator be visible after clipping was detected?
 - **dbFs <-> linear:** Select whether the peak meter displays linear or logarithmic values. In dbFs (decibel full scale) the volume values are scaled logarithmically. This very similar to the perception of loudness. The volume meters of digital audio devices usually are scaled this way. If you are interested in the power that is applied to your headphones you should choose linear display. Unfortunately this value doesn't have real units like volts or watts since that depends on the phones. So they can only be displayed as percentage values.
 - **Performance:** In high performance mode the peak meter is updated as often as possible. That reduces the chance of missing a peak value -> the peak meter becomes more precise. In energy save mode the peak meter is updated just often enough to look fluently. This reduces the load on the cpu and thus saves a tiny little bit of energy. If you crave for every second of runtime of your jukebox or simply like to see something moving on the screen the use of energy saver mode is recommended. If you want to use the peak meter as a measuring instrument you'll want to use high performance mode. Otherwise the peak meter would be a mere toy.
 - **Minimum and maximum of range:** this two options define the full value range that the peak meter displays. Recommended values for dbFs are -40 for min. and 0 for maximum. For linear display, 0 and 100%. Note that -40 dbFs is approximately 1% in linear value, but if you change the min setting in linear mode slightly and then change to dbFs you notice vast changes. You can use these values for 'zooming' into the peak meter.
-
- **Volume Display**
This setting lets you choose the battery display between graphic mode or numeric display.
 - **Battery Display**
This option handles the battery display, letting you choose between graphic or numeric display.

6.3.4 SYSTEM OPTIONS

- **Disk Spindown**

Rockbox has a timer that makes it spin down the hard disk after being idle for a certain time. You can modify this timeout here. This idle time is only affected by user activity, like navigating through file browser. When the hard disk spins up to fill mp3 buffer, it automatically spins down afterwards.

- **Disk Poweroff**

Whether the disk is powered OFF or only set to "sleep" when spun down. Power OFF uses less power but takes longer to spin-up.

- **Battery Capacity**

Set here the capacity of your battery (default is 1500 mAh). It is used for estimating battery time left.

- **Deep discharge (Recorder only, FM series not included)**

Set this to ON if you intend to keep your charger connected for a long period of time. It lets the batteries go down to 10% before starting to charge again. Setting this to OFF will cause the charging to restart on 95%.

- **Trickle Charge (Recorder only, FM series not included)**

Trickle charge is needed to keep the batteries full. That's necessary because the device will stay powered on and continue to consume some power from the batteries. Trickle charge is needed to keep the batteries full after charging has completed.

- **Set Time/Date (Recorder only)**

Set current time and date.

- **Time Format**

Choose 12 or 24 Hour clock.

- **Idle poweroff**

After how long period of idle time should the unit power off?

- **Reset settings**

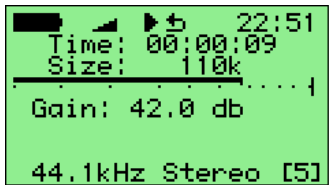
Reset all settings to default values.

6.3.5 SAVE SETTINGS

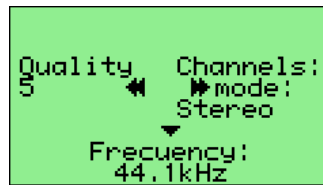
This option lets you save your current configuration to a .cfg file, so you can reload the settings in a future. (See section 9.4 for further information)

6.4 RECORDING (ONLY FOR RECORDERS)

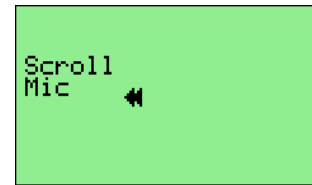
6.4.1 WHILE RECORDING SCREEN



Recording Screen



Recording F2 screen



Recording F3 screen

Entering the "Recording" option in the Main menu launches the recording application.

The screen shows the time elapsed and the size of the file being recorded. A peak meter is present to allow you set Gain correctly. Frequency, channels and quality are shown on the last line.

The controls for this screen are:

BUTTON	FUNCTION
LEFT	Decreases Gain
RIGHT	Increases Gain
PLAY	Starts recording.
STOP	Exits Recording Screen. If Recording a file, stop recording.
F1	Opens Recording Settings screen (see section 6.4.2)
F2	Quick menu for recording settings. A quick press will leave the screen up (press F2 again to exit), while holding it will close the screen when you release it.
F3	Quick menu for source setting. Quick/hold works as for F2.

6.4.2 RECORDING SETTINGS

- **Quality**
Choose the quality here (0 to 7). Default is 5.
- **Frequency**
Choose the recording frequency. 48kHz, 44.1kHz, 32kHz, 24kHz, 22.05kHz, 16kHz are available.
- **Source**
Choose the source of the recording, micro, line or spdif.
- **Channels**
You can choose here between the different channels modes on rockbox:
 - Mono
 - Stereo

6.5 PLAYLIST CREATION

Nowadays, Rockbox can only build basic playlist, adding all sub-folders and songs found in a directory. Just navigate to the chosen folder using file browser, enter the menu and press CREATE PLAYLIST.

6.6 SHOW ID3 INFO

While you are playing a mp3, you can read that file ID3 info by getting into the main menu and selecting this option. You can move through the different items by pressing LEFT/RIGHT.

6.7 SLEEP TIMER

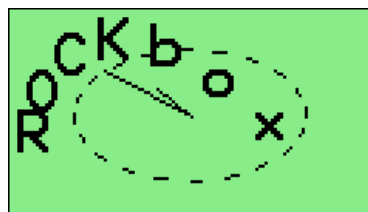
This utility let you power off your jukebox after an amount of time. The amount of time is configurable.

6.8 GAMES (RECORDER ONLY)

Rockbox has three games, Tetris, Sokoban and Wormlet. For a detailed description on each one and to learn game controls, see Part IV, sections 13 for Tetris, section 14 for Sokoban and section 15 for Wormlet.

6.9 DEMOS (RECORDER ONLY)

6.9.1 BOUNCE



The bounce Demo

This demo is an analog clock screensaver with "rockbox" bouncing across the screen.

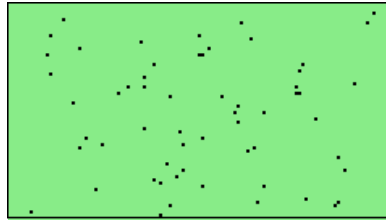
Key controls for this demo are:

KEY	ACTION
F1/F2/F3	Enters Bounce configuration options
UP/DOWN	Moves to next/previous option
LEFT/RIGHT	Increases/decreases option value
ON	Changes to Scroll mode
OFF	Exits bounce demo

Available options are:

- Xdist/Ydist: The distance to X axis and Y axis respectively
- Xadd/Yadd: how fast the code moves on the sine curve on each axis
- Xsane/Ysane: Changes the appearance of the bouncing.

6.9.2 SNOW



Have you ever seen snow falling?

This demo replicates snow falling on your screen. If you love winter, you will love this demo, or maybe not.

6.9.3 OSCILLOGRAPH

There are two mechanisms to alter speed.

- Slowing down is achieved by increasing the time waiting for user input. This mechanism uses positive values.
- Speeding up is achieved by leaving out the user input check for (-speed) volume samples. For this mechanism negative values are used.

Key controls:

KEY	ACTION
F1	toggles whether to scroll or not
F2	toggles filled / curve / plot
F3	reset speed to 0
UP	slow down scrolling
DOWN	Speeds up scrolling
PLAY	Pauses the demo
OFF	Exits demo

6.10 INFO

This option shows MP3 ram buffer size, battery voltage level and estimated time remaining, disk total space and disk free space.

6.11 VERSION

Software version and credits display.

6.12 DEBUG (KEEP OUT!)

This submenu is intended to be used only by Rockbox developers. You should keep out of it and don't mess around.

7. QUICK SCREEN MENUS (RECORDER VERSION ONLY)



F2 Quick Screen Menu



F3 Quick Screen Menu

Rockbox handles Function buttons in a different way than Archos. F1 is always for Menu purposes, while F2 and F3 enables two quick menus.

F2 let you handle some browse and play settings which are normally changed a lot of times. This settings are Shuffle mode, Repeat mode and the Show files options (see sections 6.3.1 and 6.3.2 for more info about these settings).

Key controls for F2:

KEY	ACTION
LEFT	Controls Shuffle mode setting
RIGHT	Controls Repeat mode setting
DOWN	Controls Show file setting

F3 controls some display options. You can change Scroll bar, Status bar and Invert display from here. (See section 6.3.3 for more info about these settings).

Key controls for F3:

KEY	ACTION
LEFT	Controls scroll bar display
RIGHT	Controls status bar display
DOWN	Controls inverted setting

8. WHILE PLAYING SCREEN (WPS)



Recorder's WPS



Player's WPS

Rockbox handles with a user customizable Mp3 playback screen. See section 9 to know how to customize your WPS (While playing screen).

The screen lines by default contain the following information:

Recorder

- Status bar: Battery level, charger status, volume, play mode, repeat mode, shuffle mode and clock
- Scrolling path+filename of the current song.
- The ID3 track name
- The ID3 album name
- The ID3 artist name
- Bit rate. VBR files display average bitrate and "(avg)".
- Elapsed and total time
- A sidebar progress meter representing where in the song you are
- Peak meter

Notes:

The number of lines shown depends on the size of the font used.

The peak meter is normally only visible if you turn off the status bar.

Key controls for the WPS (RECORDER):

KEY	ACTION
UP/DOWN	Volume up/down
LEFT	Quick press: Go to beginning of track, or if pressed while in the first seconds of a track, go to previous track Hold: Rewind in track
RIGHT	Quick press = Go to next track. Hold = Fast-forward in track.
PLAY	Toggle play/pause
ON	Quick press = Go to file browser Hold = Show pitch setting screen
STOP	Stop playback
F1	Go to Main menu
F2	Toggles Play/browse quick menu
F3	Toggles Display quick menu
F1+DOWN	Key lock on/off
F1+PLAY	Mute on/off
F1+ON	Enter ID3 viewer

Player

- Playlist index/Playlist size: Artist - Title
- Current-time Progress-indicator Left

Key controls for the WPS(PLAYER):

KEY	ACTION
MENU+RIGHT	Increases volume
MENU+LEFT	Decreases volume
LEFT	Quick press: Go to beginning of track, or if pressed while in the first seconds of a track, go to previous track Hold: Rewind in track
RIGHT	Quick press = Go to next track. Hold = Fast-forward in track.
PLAY	Toggle play/pause
ON	Quick press = Go to file browser
OFF	Stop playback
MENU	Go to Main menu
MENU+DOWN	Key lock on/off
MENU+PLAY	Mute on/off
MENU+ON	Enter ID3 viewer

9 CUSTOMIZING USER INTERFACE

9.1 LOADING FONTS (RECORDER ONLY)

Rockbox can load fonts dynamically. Simply copy the .fnt file to the disk and "play" them in the Rockbox dir browser.

If you want a font to be loaded automatically every time you start up, make sure it is located in the /.rockbox folder (see section 2) and that the file name is max 24 characters. Then simply click PLAY on it.

Also, any BDF font file up to 16 pixels high should be usable with Rockbox. To convert from bdf to fnt, use the convbdf tool. This tool can be found on Rockbox website (<http://rockbox.haxx.se/fonts/convbdf>).

9.2 LOADING LANGUAGES

Rockbox can load language files runtime. Simply copy the .lng file (not the .lang file) to the Archos and "play" it in the Rockbox dir browser.

If you want a language to be loaded automatically every time you start up, make sure it is located in the /.rockbox folder (see section 2) and that the file name is max 24 characters. Then simply click PLAY on it.

Nowadays we support up to 16 different languages, you can get them on <http://rockbox.haxx.se/lang/>

If your language is not yet supported and you want to collaborate writing your language file, follow this instructions:

- Copy the <http://rockbox.haxx.se/lang/english.lang> file and start filling in the "new:" lines.
- Name your file <language>.lang, where <language> is the local name for your language. I.e svenska.lang, francais.lang etc.
- When you are done, submit your .lang file to rockbox patch tracker. (http://sourceforge.net/tracker/?group_id=44306&atid=439120)

9.3 CONFIGURING THE WPS

Description / General Info

- The Custom WPS Display is used on both the Rockbox Player and Recorder, as a means to customize the WPS to the user's likings.
- After editing the .wps file, "play" it to make it take effect.
- The file may be 2 lines long for the Player, and 10 lines for the Recorder.
- The line that has the time displayed on it MUST NOT be the line that is scrolled, or the time will not be updated.
- All characters not preceded by % are displayed as typed.

File Location

Custom WPS files may be located anywhere on the drive. The only restriction is that they must end in .wps. When you PLAY a .wps file, it'll be used for the future WPS screens. If the "played" wps file is located in the /.rockbox folder (see section 2), it'll be remembered and used for subsequent restarts. Filenames in the /.rockbox folder must be no more than 24 characters long.

Tags

- ID3 Info Tags:
 - %ia : ID3 Artist
 - %id : ID3 Album Name
 - %ig : ID3 Genre Name (*)
 - %in : ID3 Track Number
 - %it : ID3 Track Title
 - %iy : ID3 Year
 - %iv : ID3 Version (1.0, 1.1, 2.2, 2.3, 2.4 or empty if no id3 tag) (*)
- Battery Info:
 - %bl : Show numeric battery level in percent (*)
 - %bt : Show estimated battery time left (*)
- File Info Tags:
 - %fb : File Bitrate (in kbps)
 - %ff : File Frequency (in Hz)
 - %fm : File Name
 - %fn : File Name (without extension)
 - %fp : File Path
 - %fs : File Size (In Kilobytes)
 - %fv : "(vbr)" if variable bit rate or "" if constant bit rate
 - %d1 : First directory from end of file path.
 - %d2 : Second directory from end of file path.
 - %d3 : Third directory from end of file path.

Example for the the %dN commands: If the path is "/Rock/Kent/Isola/11-747.mp3", %d1 is "Isola", %d2 is "Kent"... You get the picture.

- Playlist/Song Info Tags:
 - %pb : Progress Bar
Player: This will display a 1 character "cup" that empties as the song progresses.
 - Recorder: This will replace the entire line with a progress bar.
 - %pf : Player: Full-line progress bar + time display
 - %pc : Current Time In Song
 - %pe : Total Number of Playlist Entries
 - %pm : Peak Meter (Recorder only) The entire line is used as volume peak meter.
 - %pn : Playlist Name (Without path or extension)
 - %pp : Playlist Position
 - %pr : Remaining Time In Song
 - %ps : Shuffle. Shows 's' if shuffle mode is enabled.
 - %pt : Total Track Time
 - %pv : Current volume
- Conditional Tags (If/Else block):
 - :%?xx<|> : Conditional: if the tag specified by "xx" has a value, the text between the "<" and the "|" is displayed, else the text between the "|" and the ">" is displayed. The else part is optional, so the "|" does not have to be specified if no else part is desired. The conditionals nest, so the text in the if and else part can contain all % commands, including conditionals.

Other Tags:

- %% : Display a '%'
- %< : Display a '<'
- %| : Display a '|'
- %> : Display a '>'
- %s : Indicate that the line should scroll. Can occur anywhere in a line (given that the text is displayed; see conditionals above). You can specify up to 10 scrolling lines %s is ignored if combined with %pb, %pc or %pr on the same line (the result wouldn't be good anyway).

Example File

```
%s%?in<%in - >%?it<%it|%fn> %?ia<[%ia%?id<, %id>]>
%pb%pc/%opt
```

That is, "tracknum - title [artist, album]", where most fields are only displayed if available. Could also be rendered as "filename" or "tracknum - title [artist]".

Default

If you haven't selected a .wps file in the .rockbox directory, you get the hardcoded wps layout. The default WPS screen is for player:

```
%s%pp/%pe: %?ia<%ia - >%?it<%it|%fm>
%pc%pb%pt
```

And for recorder:

%s%fp
%it
%id
%ia
%fb kbit %fv
Time: %pc / %pt
%pb
%pm

9.4 BUILDING YOUR OWN SETTINGS FILE

The .cfg file is used to load settings from a plain text file. A .cfg file may reside anywhere on the hard disk. The only restriction is that the filename must end in .cfg

Format Rules

- Format: setting: value
- Each setting must be on a separate line.
- Lines starting with # are ignored.

Settings (allowed values) [unit]

volume	(0 - 100)
bass	(-15 - 15)
treble	(-15 - 15)
balance	(-100 - 100)
channels	(stereo, stereo narrow, stereo wide, mono, mono left, mono right, karaoke)
shuffle	(on, off)
repeat	(off, all, one)
play selected	(on, off)
resume	(off, ask, ask once, on)
scan min step	(1, 2, 3, 4, 5, 6, 8, 10, 15, 20, 25, 30, 45, 60) [seconds]
scan accel	(0 - 15) [double scan speed every X seconds]
antiskip	(0 - 7) [seconds]
volume fade	(on, off)
sort case	(on, off)
show files	(all, supported, music, playlists)
follow playlist	(on, off)
scroll speed	(1 - 10) [Hz]
scroll delay	(0 - 250) [1/10s]
scroll step	(1 - 112) [pixels]
bidir limit	(0 - 200) [% of screen width]
contrast	(0 - 63)
backlight timeout	(off, on, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 45, 60, 90) [seconds]
backlight when plugged	(on, off)

disk spindown (3 - 254) [seconds]
battery capacity (1500 - 2400) [mAh]
idle poweroff (off, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 30, 45, 60)
[minutes]

lang (/path/filename.lng)
wps (/path/filename.wps)

Recorder-specific settings (allowed values) [unit]

loudness (0 - 17)
bass boost (0 - 100)
auto volume (off, 2, 4, 8) [seconds]

peak meter release (1 - 126)
peak meter hold (off, 200ms, 300ms, 500ms, 1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 15, 20, 30, 1min)
peak meter clip hold (on, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 45,
60, 90, 2min, 3min, 5min, 10min, 20min, 45min, 90min)
peak meter busy (on, off)
peak meter dbfs (on, off) (on = dbfs, off = linear)
peak meter min (0 - 89) [dB] or (0 - 100) [%]
peak meter max (0 - 89) [dB] or (0 - 100) [%]

statusbar (on, off)
scrollbar (on, off)
volume display (graphic, numeric)
battery display (graphic, numeric)
time format (12hour, 24hour)
font (/path/filename.fnt)
invert (on, off)

deep discharge (on, off)
trickle charge (on, off)
disk poweroff (on, off)

rec quality (0 - 7) (0=smallest size, 7=highest quality)
rec frequency (48, 44, 32, 24, 22, 16) [kHz]
rec source (mic, line, spdif)
rec channels (mono, stereo)
rec mic gain (0 to 15)
rec left gain (0 to 15)
rec right gain (0 to 15)

Example File

```
volume: 70  
bass: 11  
treble: 12  
balance: 0  
time format: 12hour  
volume display: numeric  
show files: supported  
wps: /.rockbox/car.wps  
lang: /.rockbox/afrikaans.lng
```

10.USING ROLO (ROCKBOX LOADER)

Rockbox is able to load on the fly another firmware, without rebooting. You just have to press PLAY on a .ajz (for the recorder) or .mod (for the player) file. This can be used to test new firmware versions without deleting your current version, or even to load Archos firmware (Who would want to do that?).

PART III FEATURES

11.FEATURES COMPARISON CHART

Feature	Rockbox	Archos
ID3v1 and ID3v2 support	Yes	?
Background noise during playback	No	Yes
Mid-track resume	Yes	No
Mid-playlist resume	Yes	No
Resumed playlist order	Yes	No
Battery lifetime	Longer	Long
Battery time indicator	Yes	No
Customizable font (Recorder)	Yes	No
Customizable screen info when playing songs	Yes	No
USB attach/detach without reboot	Yes	No
Can load another firmware without rebooting	Yes	No
Playlist load speed, songs/sec	2000 - 3500	15 - 20
Max number of songs in a playlist	10 000	999
Supports bad path prefixes in playlists	Yes	Yes
Open source/development process	Yes	No
Corrects reported bugs	Yes	No
Automatic Volume Control (Recorder)	Yes	No
Pitch control (Recorder)	Yes	No
Text File Reader	Yes	Yes
Games (Recorder)	Tetris, Sokoban, Snake	No
File Delete & Rename	Yes	Yes
Playlist Building	Yes	Yes
Recording (Recorder)	Yes	Yes
Generates XING VBR header when recording	Yes	No
High Resolution Volume Control	Yes	No
Deep discharge option (Recorder)	Yes	No
Customizable backlight timeout	Yes	Yes
Backlight-on when charging option	Yes	No
Queue function	Yes	Yes
Supports the XING header	Yes	Yes
Supports the VBRI header	No	Yes
Max number of files in a dir	400	999
Adjustable scroll speed	Yes	No
Screensaver style demos (Recorder)	Yes	No
Variable step / accelerating fwd and rwd	Yes	No
Visual Progress Bar	Yes	No
Select/Load configs	Yes	No
Sleep timer	Yes	No
Easy User Interface	Yes	No
Remote Control Controllable	Yes	Yes
ISO8859-1 font support (Player)	Yes	No
Queue songs to play next	Yes	Yes
Bookmark positions in songs	No	No
Number of available languages	16	3

12. FEATURES WE WILL NOT IMPLEMENT

- **Record to WAV (uncompressed) or MP3pro format!**

The recording hardware (the MAS) does not allow us to do this

- **Crossfade between tracks!**

Crossfading would require two mp3 decoders, and we only have one. This is not possible.

- **Interfacing with other USB devices (like cameras) or 2 player games over USB**

The USB system demands that there is a master that talks to a slave. The Archos can only serve as a slave, as most other USB devices such as cameras can. Thus, without a master no communication between the slaves can take place.

If that is not enough, we have no ways of actually controlling the communication performed over USB since the USB circuit in the Archos is strictly made for disk-access and does not allow us to play with it the way we'd need for any good communication to work.

- **Support MP3pro, WMA or other sound format playback!**

The mp3-decoding hardware can only play MP3. We cannot make it play other sound formats.

- **Converting OGG->MP3**

The mp3-decoding hardware cannot decode ogg. It can be reprogrammed, but there is too little memory for OGG and we have no documentation on how to program the MAS' DSP.

Doing the conversion with the CPU is impossible, since a 12MHz SH1 is far too slow for this daunting task.

- **Archos Multimedia support!**

The Archos Multimedia is a completely different beast. It is an entirely different architecture, different CPU and upgrading the software is done a completely different way. We do not venture into this. Others may do so. We do not.

- **Multi-band (or graphic) equalizer!**

We cannot access information for that kind of visualization from the MP3 decoding hardware.

- **Support other filesystems than FAT32 (like NTFS or ext2 or whatever)!**

No. Rockbox needs to support FAT32 since it can only start off a FAT32 partition (since that is the only way the ROM can load it), and adding support for more file systems will just take away valuable ram for unnecessary features.

You can partition your Archos fine, just make sure the first one is FAT32 and then make the other ones whatever file system you want. Just don't expect Rockbox to understand them.

- **Add scandisk-like features!**

It would be a very slow operation that would drain the batteries and take a lot of useful ram for something that is much better and faster done when connected to a host computer.

- **CBR recording!**

The MP3 encoding hardware does not allow this.

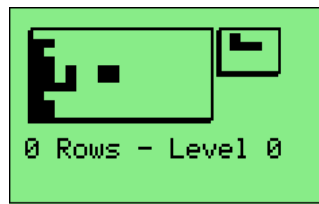
- **Change tempo of a song without changing pitch!**

The MP3 decoding hardware does now allow this.

PART IV

GAMES

13. TETRIS



Tetris on Rockbox

You can play this well-known game using your jukebox. The aim of the game is to complete rows with the given pieces (blocks). Pieces can be rotated to make them fit your rows. Once you complete a row, it gets cleared, but if you fill your display with rows you loose.

The controls for this game are:

KEY	ACTION
UP	Rotate piece
LEFT/RIGHT	Move piece to the left/right
DOWN	Move faster the piece downwards
OFF	Exit Tetris

14. SOKOBAN



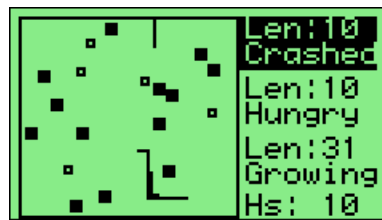
Screenshot of Sokoban

The object of the game is to push boxes into their correct position in a crowded warehouse with a minimal number of pushes and moves. The boxes can only be pushed, never pulled, and only one can be pushed at a time.

The controls are:

KEY	ACTION
UP/DOWN/LEFT/RIGHT	Move the "sokoban" up, down, left or right
F1	Back to previous level
F2	Restart level
F3	Go to next level
ON	Undo last movement
OFF	Exit sokoban

15. WORMLET



Wormlet game

Wormlet is a multi-user multi-worm game on a multi-threaded multi-functional rockbox console. You navigate a hungry little worm. Help your worm to find food and to avoid poisoned argh-tiles. The goal is to turn your tiny worm into a big worm as long as possible.

For 2-player games a remote control is not necessary but recommended. If you try to hold the Jukebox in the four hands of two players you'll find out why. Games with three players are only possible using a remote control.

Wormlet main menu controls:

KEY	ACTION
UP/DOWN	Selects number of players
LEFT/RIGHT	Controls number of worms on the game
F1	Selects game mode.

Game controls:

Players	MODES	PLAYER 1	PLAYER 2	PLAYER 3
0	Out of control	With no player taking part in the game all worms are out of control and steered by artificial stupidity.		
1	2 key control	on Jukebox left: turn left right: turn right	-	-
	4 key control	on Jukebox left: turn left up: turn up right: turn right down: turn down	-	-
2	Remote control	on Jukebox left: turn left right: turn right	on remote control vol. down: turn left vol. up: turn right	-
	No remote control	on Jukebox left: turn left right: turn right	on Jukebox F2: turn left F3: turn right	-
3	Remote control	on Jukebox left: turn left right: turn right	on remote control Vol. down: turn left Vol. up: turn right	on Jukebox F2: turn left F3: turn right

The game

Use the control keys of your worm to navigate around obstacles and find food. Worms can not stop creeping besides when dead. Dead worms are no fun. Be careful as your worm will try to eat anything that you steer it across. It doesn't distinguish whether it's eatable or not.

- **Food**

The small quadratical hollow pieces are food. By creeping your worm over a food tile you make it eat. After you ate your worm grows. Each time a piece of food has been eaten a new piece of food will pop up somewhere. Unfortunately for each new food that appears two new argh pieces will appear, too.

- **Argh**

You surely wondered what the heaven an argh might be. An argh is a black quadratical poisoned piece - slightly bigger than food - that makes a worm say "Argh!" when creeping against. A worm that tried to eat an argh is dead. Thus you must avoid eating argh under any circumstances. Arghs have the annoying tendency to accumulate.

- **Worms**

Thou shall not eat worms. Neither other worms nor yourself. Eating worms is blasphemous cannibalism, not healthy and causes instant death. And it doesn't help you anyway: you can't hurt the other worm by biting it. It will go on creeping happily and eat all the food you left on the table.

- **Walls**

Don't creep against the walls. Walls are not eatable. Creeping a worm against a wall causes it a headache it doesn't survive.

- **Game over**

The game is over when all worms are dead. The longest worm wins the game.

- **Pause the game**

Press the play key to pause the game. Hit play again to resume the game.

- **Stop the game**

There are two ways to stop a running game.

- If you want to quit Wormlet entirely simply hit the off button. The game will stop immediately and you will return to the game menu.
- If you want to stop the game and still see the screen hit the on button. This freezes the game. If you hit the on button again a new game starts with the same configuration. To return to the games menu you can hit the stop button. A stopped game can not be resumed.

The score board

On the right side of the game field you can see the score board. For each worm it displays its status and its length. The top most entry displays the state of worm 1, the second worm 3 and the third worm 3. When a worm dies it's entry on the score board turns black.

- **Len:**
Here the current length of the worm is displayed. When a worm is on food it grows by one pixel for each step it creeps.
- **Hungry:**
That's the normal state of a worm. Worms are always hungry and want to eat. It's good to have a hungry worm since it means that your worm is alive. But it's better to get your worm growing.
- **Growing:**
When your worm has eaten a piece of food it starts growing. For each step it creeps it can grow by one pixel. One piece of food lasts for 7 steps. After your worm has crept 7 steps the food is used up. If you encounter another piece of food while growing don't hesitate to eat it. It will increase your growing state for another 7 steps.
- **Crashed:**
This indicates that you crashed your poor worm against a wall. That was evil. Go and find something hard and smash it against your forehead so you feel what you did to your worm. And don't use your Jukebox. You might damage it and with its soft blue rubber edges that wouldn't hurt enough anyway.
- **Argh:**
If your score board entry displays "Argh" it means your worm is dead because of trying to eat an argh. Until we can make the worm say "Argh!" it's your job to say "Argh!" aloud.
- **Wormed:**
Your worm tried to eat another worm or even itself. That's why it's dead now. Maybe your opponent has managed to build a trap with his worm. Try to do the same with him in the next game.

HINTS

- During the first games you will be busy with controlling your worm. Try to avoid other worms and creep far away from them. Wait until they curled up themselves and collect the food afterwards. Don't bother if the other worms grow longer than yours - you can catch up after they've died.
- When you are more experienced watch the tactics of other worms. Especially those worms controlled by artificial stupidity head straight for the nearest piece of food. Let the other worm have it's next piece of food and head for the food it would probably want next. Try to put yourself between the opponent and that food. From now on you can 'control' the other worm by blocking it. You could trap it by making a 1 pixel wide U-turn. You also could move from food to food and make sure you keep between your opponent and the food. So you can always reach it before your opponent.
- While playing the game the Jukebox still can play music. For single player game use any music you like. For berzerk games with 2 players use hard rock and for 3 player games use heavy metal or X-Phobie (<http://www.x-phobie.de>). Play fair and don't kick your opponent on the big toe or poke him in the eye. That's would be bad manners.

**PART V
CREDITS**

16. CREDITS

People that have contributed to the project, one way or another. Friends!

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PART V
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